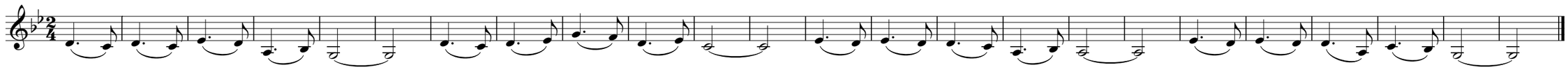
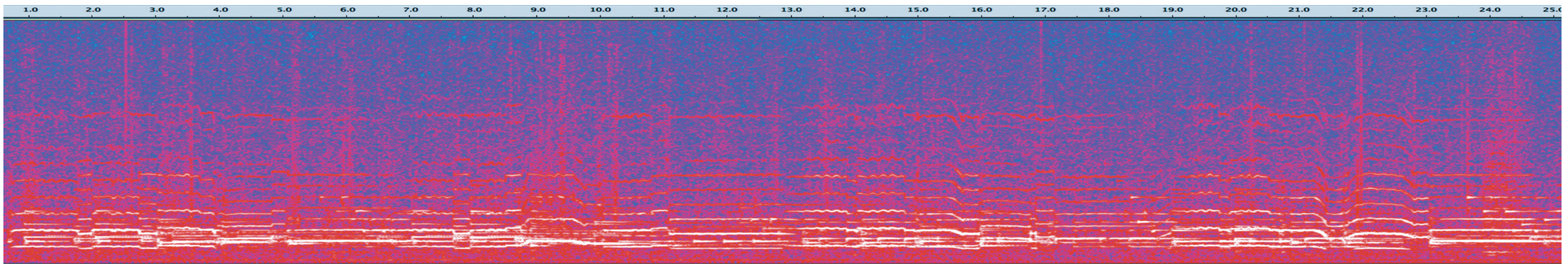
Visualizing Vibrato

Brahms' Hungarian Dance No. 1

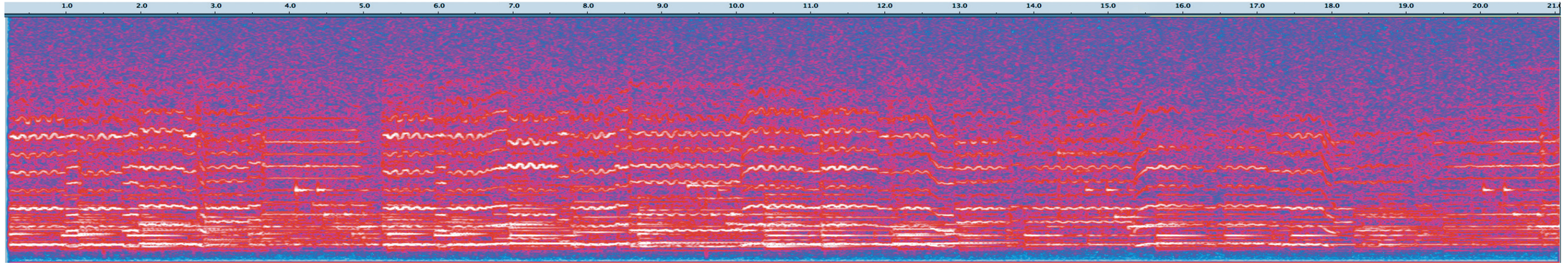
In his book *Capturing Sound*, Mark Katz explores changes in violin vibrato over time as a "phonograph effects". He presents three violin recordings of Brahms' Hungarian Dance No. 1 recorded between 1903 and 1940. Below, the first twenty-four measures of each recording are visualized using a spectrogram that depicts time (left to right), pitch (low to high from 0–4000Hz), and volume (soft blue to medium red to loud yellow). Clearly visible between recordings are changes in vibrato intensity, the amount of vibrato, use of portameno, and the overall increase of fidelity in recording equipment (as more overtones are audible/visible). Each recording's first and last notes are aligned with the musical score, although phrasing differences create an imperfect alignment. It should also be noted that, as the performed tempo varies, the overall time length depicted ranges from 21–25 seconds, so time scale has been distorted time to allow vertical alignment.



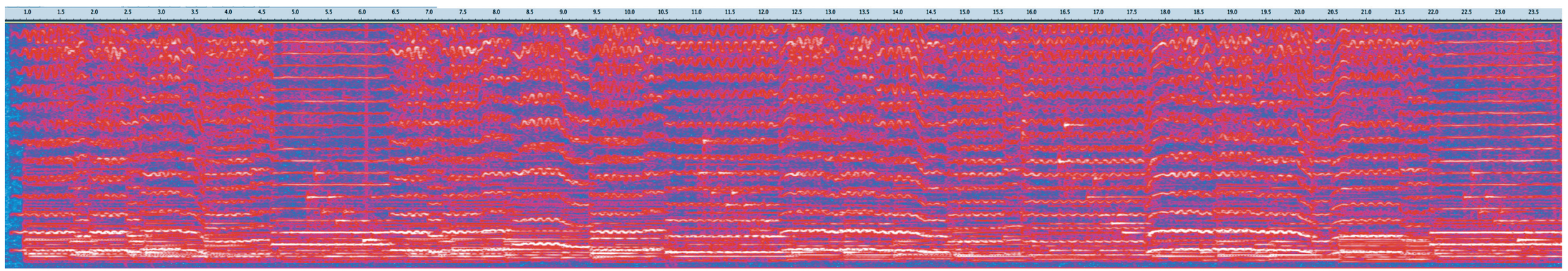
Joseph Joachim (1903)



Jascha Heifetz (1920)



Toscha Seidel (1940)



Book reference: Katz, Mark. (2004). *Capturing Sound: How technology has changed music*. Berkeley: University of California Press. Chapter 4 covers vibrato.